

ART. XV.—*Note on the Reproduction of the
Ornithorhynchus.*

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THE Bendigo Science Society having offered a reward for female specimens of *Ornithorhynchus*, procured in the end of October or beginning of November, several have been forwarded, a brief notice of the examination of which may be of interest. The specimens were five in number. Of these, two contained ova, two had given birth to the young or ova, and one was unimpregnated.

Of the first specimen I received only the left uterus and ovary, which had been removed and were sent to me by Mr. Long, of Elmore. It was shot on 1st October. In the ovary I found two ruptured ovisacs. One was much projecting, with a conical or mamilliform point, at the summit of which was a transverse rupture. It was bright red, the colour deepest at the apex. The other was not nearly so prominent, of a yellow colour, the opening at the apex nearly circular. In both, the edges of the openings were everted. The walls of the uterus were very thick, and the uterine glands were very distinct. The cavity contained a considerable quantity of mucus. Two ova were found in it. They were five millimetres in diameter, white, the envelope tough and smooth. The contents could be seen to be fluid, with a dense white mass occupying about a fourth part at one side. One was situated in the upper part of the uterus, and was slightly adherent at two points to the lining membrane, which it dragged with it when moved. When separated some minute filiform shreds remained projecting from its surface. The uterus at this part was very vascular, tinged red, but there was no vascular connection, and the adhesion seemed to be caused by some accidental inflammatory action. The other ovum was situated in a pouch or

hollow at the lower part of the uterus. It was not in any way attached, and rolled freely out of its bed, which was not more vascular than the neighbouring parts.

The second specimen containing ova was shot on the Campaspe on 4th November. It was seventeen inches long, in fine condition, with perfect fur, somewhat silvery on the abdomen. The right uterus was large, with thickened walls, smooth internally, and containing a good deal of mucus, but no ova. The corresponding ovary was little developed, and there were no recently ruptured ovisacs or appearance of any near maturity. The left uterus was very large, the walls thick, the inner surface smooth, very vascular, and covered with much mucus. Two ova, measuring four and a half and five millimetres, were found in it. They were whitish, softer than in the other specimen, the surface of the smaller slightly wrinkled. They were quite loose, and rolled freely. In the ovary were two recently ruptured ovisacs close together, bright red, with circular, everted openings. The mammary glands measured two inches by one when undisturbed and the cellular membrane not removed. The lobes were whitish, thick, and when cut into were found not to contain any milk.

Of the two in which the young or ova had been born, one was shot on the Campaspe on 27th October. It was seventeen inches long, with dark fur. There were no ova in either uterus, the walls of which were much thinner than in the last two. The right ovary was very little developed. The left was of much larger size, composed of numerous granules, the largest the size of No. 3 or 4 shot. I could not clearly detect the remains of any ruptured ovisacs. The mammary glands were largely developed, with numerous converging, thick, whitish lobes. They contained a considerable quantity of milk, which, examined microscopically, differed from cow's milk only in the smaller size of the globules.

The other in which the young had been born was dug, on 30th October, out of a burrow on the Axe Creek. It was caught alive. In the nest was also found a single young one, which the captor, thinking it of no value, threw into the creek. It was described to me as being scarcely an inch and a half in length, of a reddish colour, and perfectly smooth, without hair. The old one died before I got it. It was eighteen inches long, thin, and the fur ragged and dirty. The uterus and urogenital canal were empty. The mammary

glands were very large, as in the last. I examined the opened burrow two days afterwards. The entrance was at the root of a tree, on the margin of a permanent water-hole. It extended up the bank, which at its extremity was about eight or ten feet high, following the contour of the ground, at a uniform depth of from eighteen inches to two feet, the total length being twenty feet. The nest, which must have been of large size, was composed of small gum-leaves and grass.

The unimpregnated female was sent from Hazelwood, in Gippsland, by Mr. E. Keighly. It was sixteen inches long, slender, the fur on the abdomen of a beautiful silvery grey, with a reddish-brown streak in the centre. The ovaries were small, granular, and contained no ripe ova. The mammary glands were very small, of a reddish colour, the lobes fleshy.

It has been recently announced that Mr. Caldwell, who has been investigating the reproduction of the Monotremata and *Ceratodus* in Queensland, has ascertained that the *Ornithorhynchus* is oviparous, and that the ova are meroblastic. The full report of his researches is anxiously looked for, and will be received with the greatest interest by all biologists. In the meantime, all that is certainly known is that ova of the size of those now shown have been found in the uterus, that young of one and a half to two inches in length and upwards have been found in the nest, and that these are suckled by the mother. The intermediate stages of their development are absolutely unknown. It is to be hoped that Mr. Caldwell has been able to clear up the early life history of these extraordinary creatures, the mystery shrouding which, we must all confess, is not very creditable to Australian naturalists and observers.
